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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,557	03/31/2004	Joseph E. Paganessi	Serie 6390	4106
7590 Linda K. Russell Patent Counsel Air Liquide 2700 Post Oak Blvd., Suite 1800 Houston, TX 77056			EXAMINER MERKLING, MATTHEW J	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 04/17/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/813,557

**Applicant(s)**

PAGANESSI ET AL.

**Examiner**

MATTHEW J. MERKLING

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10,12 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10,12 and 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colton (US 3,256,358) in view of Kubota, (US 5,702,540).

Regarding claims 10 and 12, Colton discloses a method of generating acetylene, comprising:

generating acetylene in an acetylene generation device (see Figure) by directing at least one reactant feed stream including methane (col. 2 lines 7-16) into the acetylene generation device, wherein the acetylene generation device comprises an arc plasma reactor (col. 2 lines 7-16) including an anode and a cathode disposed within the reactor (col. 1 line 61 – col. 2 line 2), and the

acetylene is generated by generating plasma within the reactor via a power supply connected to the anode and the cathode thereby yielding acetylene and hydrogen according to the formula:

$2\text{CH}_4 \rightarrow \text{C}_2\text{H}_2 + 3\text{H}_2$  (inherently by reaction of methane in a plasma reactor to produce acetylene, col. 1 lines 8-20);

While Colton discloses the production of acetylene, Colton is silent as the end use of said produced acetylene. Colton fails to teach:

directing the generated acetylene to an acetylene processing device disposed in-line and downstream from the acetylene generation device; and operating the acetylene processing device to consume at least a portion of the acetylene,

nor does Colton teach the process device comprises a carburization device including at least one chamber to receive and process steel components, the carburization device being configured to perform a carburization process including heat treating and quenching the steel components or wherein the process device comprises a carburization device, and operation of the carburization device comprises: receiving and heat treating steel components within at least one chamber of the carburization device; introducing the generated acetylene into the at least one chamber to facilitate absorption and diffusion of carbon at the steel components.

Kubota discloses an apparatus that utilizes acetylene. In other words, Kubota discloses an end use of produced acetylene (see abstract).

Kubota teaches wherein a process device (Fig. 1) comprises a carburization device 1 including at least one chamber to receive and process steel components (Fig. 1), the carburization device being configured to perform a carburization process including heat treating and quenching the steel components or wherein the process device comprises a carburization device, and operation of the carburization device comprises (C3/L37-44) or receiving and heat treating steel components within at least one chamber of the carburization device 1 (Fig. 1, C3/L37-44); and introducing generated acetylene into the at least one chamber to facilitate absorption and diffusion of carbon at the steel components (C3/L37-44).

As such, It would have been obvious to one of ordinary skill at the time of the invention to add the acetylene processing method of Kubota to the process of acetylene production of Colton, in order to provide an end use to the acetylene that is produced by Colton and further producing carburized steel (see col. 1 lines 11-20 of Kubota).

4. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over F Colton (US 3,256,358) and Kubota, (US 5,702,540) as applied to claim 10 above, and further in view of Hook et al. (US 5,960,634) as evidenced by Poor (US 7,033,446).

Regarding claims 15-18, Colton, as set forth in claim 10 above, does not go into depth as to the specific end use of the acetylene (such as with carburization, as discussed above). Moreover, Colton does not teach prior to directing the generated acetylene to an acetylene processing device and a

purification device, storing the generated acetylene in at least one storage cylinder, wherein the at least one storage cylinder is disposed in-line between the acetylene generation device and the acetylene processing device and wherein the at least one storage cylinder is free of acetone.

Hook also discloses a method and apparatus for processing of acetylene (col. 2 lines 18-22). Hook teaches storing acetylene in a storage vessel (such as a cylinder) which is free of acetone (which is preferable when acetylene is used in a carburizer due to negative effects of oxygen in a carburizing processing device, see Poor, col. 6 lines 51-54) prior to utilizing the acetylene in a processing device (such as a carburizer) and also discloses a acetylene purification device (7, separates nitrogen from acetylene, col. 2 lines 25-44) prior to the processing device.

As such it would have been obvious to one of ordinary skill, to incorporate the method and apparatus for handling acetylene (as disclosed in Hook) in the generating and supplying method of modified Colton as a preferable way of safely storing (without acetone, but also not as dangerous as pure acetylene in a cylinder) acetylene prior to utilizing the acetylene in a processing device (such as a carburizer).

#### ***Response to Arguments***

5. Applicant's arguments with respect to claims 10, 12 and 15-18 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

6. The objection to claim 18 is withdrawn in light of the amendment.

### **Conclusion**

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./  
Examiner, Art Unit 1795

/Alexa D. Neckel/  
Supervisory Patent Examiner, Art Unit 1795